

Name: _____
Block: _____

Algebra Mid-Term Review

1. Evaluate: $10(4 + 3 \cdot 2) - 5^2$
2. Find the value $-|x - y|$ if $x = -10$ and $y = -5$
3. A number decreased by -10 is 20. What is the number?

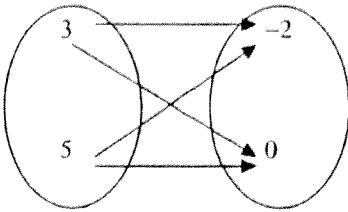
Solve each equation:

4. $2x + 5 = 3x$
5. $7n + 6 = 4n - 9$
6. $3(x - 1) - x = 3 + 2(x - 2)$
7. $7 + 3(x - 4) = 3x - 5$
8. Given $f(x) = 2x^2 - 4x$, determine $f(-3)$
9. Solve $y = 4x - 2$ if the domain is $\{ 2, 3, -4 \}$
10. Using the formula $I = prt$, solve for t .

11. Which of these relations are functions?

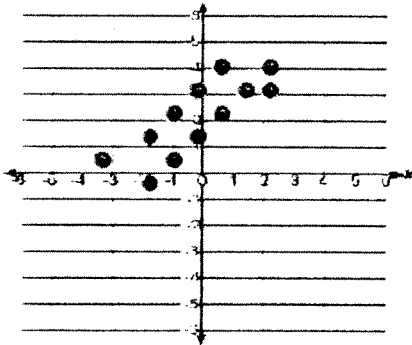
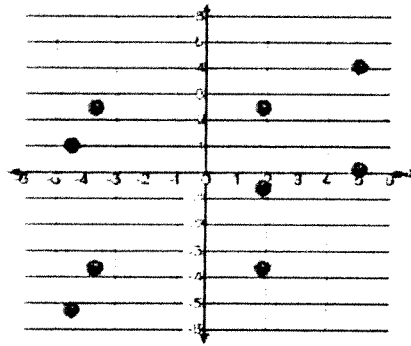
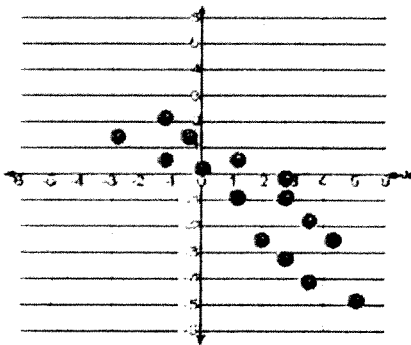
Input	5	7	5	6
Output	6	8	19	12

Input	0	8	10	13
Output	5	10	15	15



x	y
-2	3
5	0
7	-1

12. Describe the correlations for each graph.



Solve the following:

13. $2x - 8 > 12$

14. $4x - 5 \leq 2x + 11$

15. Is $(2, -1)$ a solution of $2x - 3y < 5$?

Name the property:

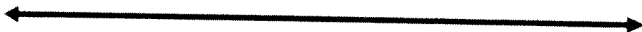
16. $7 \bullet (6 \bullet 2) = (7 \bullet 6) \bullet 2$

17. $5(xy + 4) = 5xy + 20$

18. $8 \bullet 9y = 9y \bullet 8$

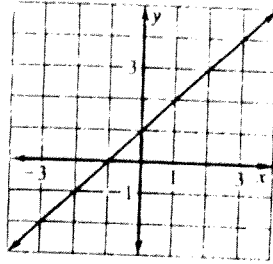
19. $3(1) = 3$

20. Solve and graph $x + 1 > -2$

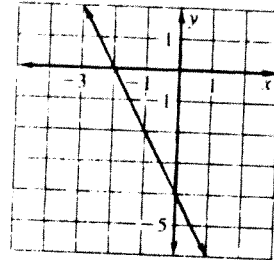
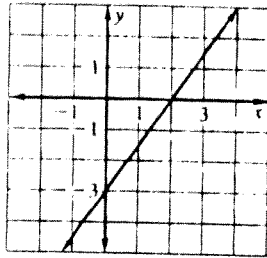


21. Use the distributive property to simplify $3(y - 8)$

22. What is the y-intercept?



23. Write the equation of the graphs below:



24. What are the x and y intercepts for $3x - 4y = 12$?

25. Find the slope passing through the points $(-4, -2)$ and $(5, 1)$.

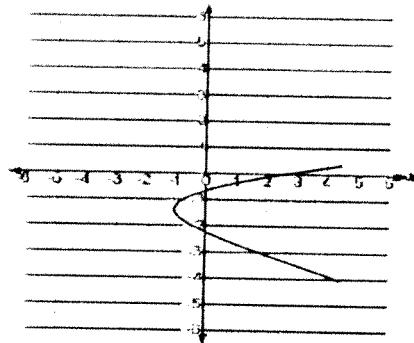
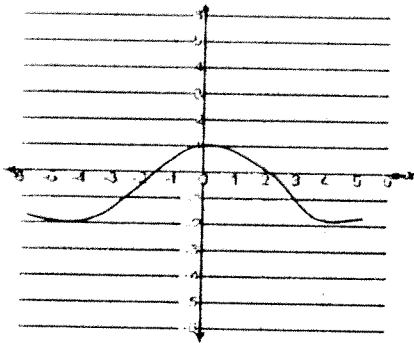
26. Name the constant of variation. $y = -4x$

27. The variables x and y vary directly. Write an equation that relates x and y when $x = 5$ and $y = 15$.

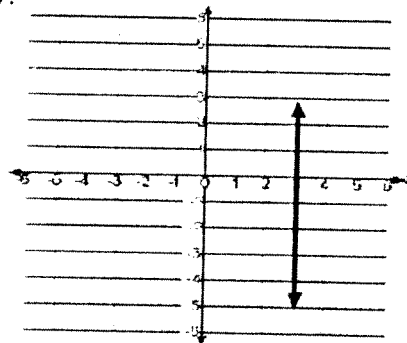
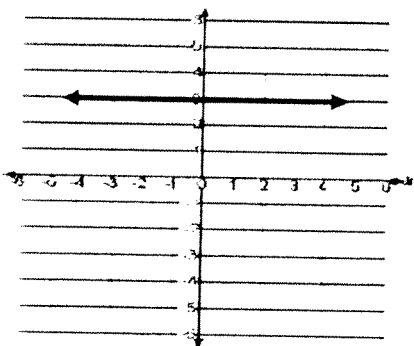
28. What is the slope of $y = -4x + 3$?

29. Write an equation of the line whose slope is 4 and whose y-intercept is 5.
30. Find the equation of the line parallel to the graph of $12x - 3y = 10$ and containing the point $(-5, 3)$.
31. If line m has a slope of $-\frac{3}{4}$, then what is the slope of a line perpendicular to m ?
32. Find the equation of the line through $(-4, 5)$ with an undefined slope.
33. What is the equation of the line whose graph passes through the origin and has a slope of 5?

34. Which is the graph of a function?



35. What is the equation of each line shown below?



36. Find the equation of the line passing through these points: (3, -7) and (6, -1).

(a) In Point-Slope Form:

(b) In Slope-Intercept Form:

37. Given the following points, determine the "Best Line of Fit" equation.

x	y
26.8	45.2
25.1	47.7
23.4	48.9

a. $y = -1.09x + 74.58$

b. $y = -0.89x + 71.53$

c. $y = 0.89x + 105.52$

d. $y = 1.09x - 74.58$

38. What is the x-intercept of the graph of the function shown below?

$$2x + 6y = 18$$

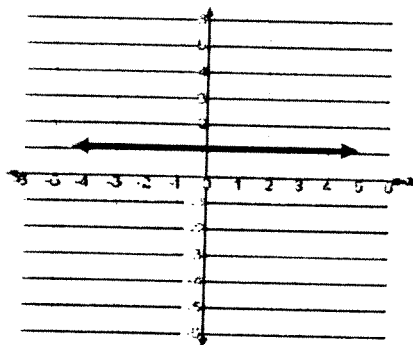
a. 2

b. 3

c. 6

d. 9

39. Determine the rate of change of the line parallel to the line in the graph.



40. Write an equation to represent the pattern shown in the table.

x	-8	-5	-2	1	4
y	11	5	-1	-7	-13

41. Kaitlin solved $x - 11 \geq 2y - 6$ for y using the following steps.

$$x - 11 \geq 2y - 6$$

$$\text{Step 1: } -2y - x - 11 \geq -6$$

$$\text{Step 2: } -2y \geq x + 5$$

$$\text{Step 3: } y \leq -0.5x - 2.5$$

Which property justifies Step 1?

- a. Commutative Property of Addition
 - b. Distributive Property
 - c. Subtraction Property of Inequality
 - d. Multiplication Property of Inequality
42. The cost of a school banquet is \$85 plus \$12 for each person attending. Determine the linear equation that models this problem. What is the cost for 89 people?
- a. $y = 12x - 85$; \$983
 - b. $y = 85x + 12$; \$7577
 - c. $y = 85x - 12$; \$7553
 - d. $y = 12x + 85$; \$1153

43. Write the equation in point-slope form of the line that passes through $(3, 4)$ and has a slope of 4.

44. Write $y = 3x - 6$ in Standard Form.

45. Is $(3, 1)$ a solution to the equation $y - x = -4$?

46. Write the equation of the line in Slope-Intercept Form that passes through $(1, 4)$ and has a slope of 2.

47. Find the range of the function $y = -3x + 3$ for the following values: $x = \{-2, -1, 0, 1\}$.

48. Write the inequality for the sentence "The sum of 4 and three times x is greater than 35."

49. Use the distributive property to rewrite $5(x-4)$ without parentheses.

50. Find the range of the function $y = -3x + 8$ for these x values: $\{-2, -1, 0, 1\}$.

51. Write the mathematical representation of this sentence: "The sum of 10 and twice x is less than 25."

52. The number of days in a month are best represented as elements of which real number set?

A. Whole

B. Natural

C. Integers

D. Irrational